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10/722,405	11/28/2003	Takashi Suzuki	000409-073	7172
21839	7590	04/29/2005	EXAMINER	
BURNS DOANE SWECKER & MATHIS L L P			SCHINDLER, DAVID M	
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			2862	

DATE MAILED: 04/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/722,405

Applicant(s)

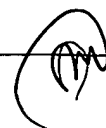
SUZUKI ET AL.

Examiner

David Schindler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☒ Claim(s) 14 and 15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/23/04, 2/22/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the magnetic detecting element is shifted towards the third yoke of Claim 11 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to because 1) the wire running from top to bottom at the right side of (3) in Figure 1 does not have a label, 2) reference numbers (11a) and

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(9) appear to point to the same feature, 3) it is recommended to place the name of the feature that reference number (12) of is pointing to its blank box in Figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities:

The phrase "Herein, the position detecting sensor can output ... positioned near there" of lines 17-20 of page 6 appears to be contrary to the phrases "Turning now to

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FIG.2, when the ... as being explained in FIG. 6" of lines 11-14 and "In the meantime, when the magnetic body ... explained in FIG. 6" of lines 14-17 of page 6.

It is not clear what the "other magnetic body" is referring to on the last line of page 8.

Appropriate correction is required.

Claim Objections

4. Claims 2, 3, 4, 7-10, and 15 objected to because of the following informalities:

As to Claims 2, 3, and 15,

The "third yoke" mentioned on line 2 of Claim 2 and line 1 of Claim 3 is unclear as neither a first or a second yoke is required in Claims 1, 2, 3, or 15.

As to Claim 2,

The phrase "the second pole side of the second magnet" on line 2 lacks antecedent basis.

The phrase "the first pole side of the first magnet" on line 3 lacks antecedent basis.

As to Claim 4,

The phrase "the second pole side of the second magnet" on lines 7-8 lacks antecedent basis.

The phrase "positioned in the vicinity including a line" on line 9 is awkward and it is recommended to instead state "positioned in the vicinity of a line."

The phrase "the first pole side of the first magnet" on line 11 lacks antecedent basis.

As to Claims 7-10,

The phrase "the direction extending" on line 3 of Claims 7-10 lacks antecedent basis. It is recommended to instead state "a direction extending."

Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 7, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Gotoh et al. (EP 916953).

As to Claim 1,

Gotoh et al. discloses a first magnet (41) having a first pole ((S) of (41)) and a second pole ((N) of (41)), a second magnet (31) having a first pole ((S) of (31)) and a second pole ((N) of (31)) and positioned near the first magnet (Figure 1), the first pole of the second magnet facing the second pole of the first magnet (Figure 1), the first pole of the first magnet being the same as the first pole of the second magnet and the second pole of the first magnet being the same as the second pole of the second magnet (Figure 1), and a magnetic detecting element (the combination of (2) and (1)) in the

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vicinity of the first and second magnets (Figure 1), wherein a magnetic flux density detected in a zone including the magnetic detecting element while a detected body is away from the position detecting sensor more than a predetermined distance is greater than a magnetic flux density detected in the zone while the detected body is positioned near at least one side of the position detecting sensor by the predetermined distance ((Column 3, Lines 35-58) and (Column 5, Lines 6-36)).

As to Claim 2,

Gotoh et al. discloses a third yoke (32A) positioned at the second pole side of the second magnet (Figure 1), wherein the detected body approaches to the first pole side of the first magnet (Figure 1).

As to Claim 3,

Gotoh et al. discloses the third yoke is separated from the second pole of the second magnet by a predetermined distance (Figure 1).

As to Claim 7,

Gotoh et al. discloses a thickness of the first magnet differs from a thickness of the second magnet, and the thickness of each magnet is a dimension in parallel with the direction extending between the first and second magnets (Figure 1).

As to Claim 9,

Gotoh et al. discloses a thickness of the first magnet differs from a thickness of the second magnet, and the thickness of each magnet is a dimension at substantially right angles with the direction extending between the first and second magnets (Figure 1).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4, 6, 8, 10, and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Gotoh et al. (EP 916953) in view of Birnbaum (4,236,093).

As to Claim 4,

Gotoh et al. does not disclose a first yoke positioned between the first magnet and the second magnet, a projecting portion extending at the first yoke in a direction at approximately right angles with a line extending between the first and second magnets, a second yoke positioned so as to dispose the magnetic detecting element between the second yoke and a tip end of the projecting portion, and a third yoke oriented near the projecting portion at the second pole side of the second magnet and at one side of the second yoke, wherein the magnetic detecting element is positioned in the vicinity including a line extending between the tip end of the projecting portion and the second yoke, and wherein the detected body approaches to the first pole side of the first magnet and the other side of the second yoke.

Birnbaum discloses a first yoke (232) positioned between the first magnet (211) and the second magnet (212), a projecting portion (220) extending at the first yoke in a direction at approximately right angles with a line extending between the first and

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second magnets (Figure 5), a second yoke (221) positioned so as to dispose the magnetic detecting element (228) between the second yoke and a tip end of the projecting portion (Figure 5), and a third yoke (213) oriented near the projecting portion at the second pole side ((N) of 212) of the second magnet and at one side of the second yoke (Figure 5), wherein the magnetic detecting element is positioned in the vicinity including a line extending between the tip end of the projecting portion and the second yoke, and wherein the detected body (202) approaches to the first pole side ((S) of 211) of the first magnet and the other side of the second yoke (Figure 5).

It would have been obvious at the time of the invention to modify Gotoh et al. to include a first yoke positioned between the first magnet and the second magnet, a projecting portion extending at the first yoke in a direction at approximately right angles with a line extending between the first and second magnets, a second yoke positioned so as to dispose the magnetic detecting element between the second yoke and a tip end of the projecting portion, and a third yoke oriented near the projecting portion at the second pole side of the second magnet and at one side of the second yoke, wherein the magnetic detecting element is positioned in the vicinity including a line extending between the tip end of the projecting portion and the second yoke, and wherein the detected body approaches to the first pole side of the first magnet and the other side of the second yoke as taught by Birnbaum in order to output a signal from the sensor when the detected body (wheel) passes (Column 10, Lines 39-42).

As to Claim 6,

Gotoh et al. does not disclose the third yoke is provided integrally with the second yoke.

Birnbaum discloses the third yoke is provided integrally with the second yoke (Figure 5).

It would have been obvious at the time of the invention to modify Gotoh et al. to include the third yoke is provided integrally with the second yoke as taught by Birnbaum in order to guide the flux (Column 8, Lines 56-63).

As to Claim 8,

Gotoh et al. discloses a thickness of the first magnet differs from a thickness of the second magnet, and the thickness of each magnet is a dimension in parallel with the direction extending between the first and second magnets (Figure 1).

As to Claim 10,

Gotoh et al. discloses a thickness of the first magnet differs from a thickness of the second magnet, and the thickness of each magnet is a dimension at substantially right angles with the direction extending between the first and second magnets (Figure 1).

As to Claim 13,

Gotoh et al. does not disclose the projecting portion extends from an approximately central portion of the first yoke.

Birnbaum discloses the projecting portion extends from an approximately central portion of the first yoke (Figure 5)

It would have been obvious at the time of the invention to modify Gotoh et al. to include the projecting portion extends from an approximately central portion of the first yoke as taught by Birnbaum in order to have magnetic flux flow in the projecting portion (member (220)) (Column 9, Lines 26-27).

5. Claims 5 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gotoh et al. (EP 916953) in view of Birnbaum (4,236,093) and in further view of Luetzow (6,653,830).

As to Claim 5,

Gotoh et al. in view of Birnbaum discloses as explained above.

Gotoh et al. in view of Birnbaum does not disclose the third yoke is separated from the second pole of the second magnet and from the one side of the second yoke by a predetermined distance.

Luetzow discloses the third yoke (106) is separated from the second pole ((N) of (102a)) of the second magnet (102a) and from the one side of the second yoke (104b) by a predetermined distance (Figure 10).

It would have been obvious at the time of the invention to modify Gotoh et al. in view of Birnbaum to include the third yoke is separated from the second pole of the second magnet and from the one side of the second yoke by a predetermined distance as taught by Luetzow in order to have a magnetic flux density field strength that varies along an air gap (Column 14, Lines 24-28).

As to Claim 12,

Gotoh et al. in view of Birnbaum does not disclose the magnetic detecting element is shifted in a direction at right angles with the extending direction of the projecting portion.

Luetzow discloses the magnetic detecting element (60) is shifted in a direction at right angles with the extending direction of the projecting portion (104a) (Figure 10).

It would have been obvious at the time of the invention to modify Gotoh et al. in view of Birnbaum to include the magnetic detecting element is shifted in a direction at right angles with the extending direction of the projecting portion as taught by Luetzow in order to increase the magnitude of the magnetic flux passing through the magnetic detecting element (MR element) (Column 18, Lines 14-18).

It is noted that Examiner is interpreting the extending direction of the projecting portion to be from the top of (104a) to the bottom of (104a).

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gotoh et al. (EP 916953) in view of Luetzow (6,653,830).

Gotoh et al. does not disclose the magnetic detecting element is shifted towards the third yoke.

Luetzow discloses the magnetic detecting element (60) is shifted towards the third yoke (106) ((Figure 10) and (Column 18, Lines 14-18)).

It would have been obvious at the time of the invention to modify Gotoh et al. to

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include the magnetic detecting element is shifted towards the third yoke as taught by Luetzow in order to increase the magnitude of the magnetic flux passing through the magnetic detecting element (MR element) (Column 18, Lines 14-18).

Allowable Subject Matter

7. Claims 14 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

As to Claim 14,

The primary reason for the allowance of claim 14 is the inclusion of the third yoke positioned in parallel with the extending direction of the projecting portion. It is these features found in the claim, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

As to Claim 15,

The primary reason for the allowance of claim 15 is the inclusion of the third yoke has substantially the same magnetic permeability as the detected body. It is these features found in the claim, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Pat. No. 3,060,370 to Varterasian which discloses two magnets and a core with an extending portion.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Schindler whose telephone number is (571) 272-2112. The examiner can normally be reached on M-F (8:00 - 5:00).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David Schindler



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